National Institute of Environmental Health Sciences

Excess deaths during the 2004 heatwave in Brisbane, Australia

Author(s): Tong S, Ren C, Becker N
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Abstract:

The paper examines whether there was an excess of deaths and the relative role of temperature and ozone in a heatwave during 7-26 February 2004 in Brisbane, Australia, a subtropical city accustomed to warm weather. The data on daily counts of deaths from cardiovascular disease and non-external causes, meteorological conditions, and air pollution in Brisbane from 1 January 2001 to 31 October 2004 were supplied by the Australian Bureau of Statistics, Australian Bureau of Meteorology, and Queensland Environmental Protection Agency, respectively. The relationship between temperature and mortality was analysed using a Poisson time series regression model with smoothing splines to control for nonlinear effects of confounding factors. The highest temperature recorded in the 2004 heatwave was 42 degrees C compared with the highest recorded temperature of 34 degrees C during the same periods of 2001-2003. There was a significant relationship between exposure to heat and excess deaths in the 2004 heatwave [estimated increase in non-external deaths: 75 ([95% confidence interval, CI: 11-138; cardiovascular deaths: 41 (95% CI: -2 to 84)]. There was no apparent evidence of substantial short-term mortality displacement. The excess deaths were mainly attributed to temperature but exposure to ozone also contributed to these deaths.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Temperature

Air Pollution: Ozone, Particulate Matter, Other Air Pollution

Air Pollution (other): NO2

Temperature: Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Australasia

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Morbidity/Mortality

Cardiovascular Effect: Other Cardiovascular Effect

Cardiovascular Disease (other): cardiovascular disease mortality

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified